AMENDMENTS TO THE CLAIMS

1. (Currently Amended) A recording apparatus, characterized by comprising:

bit pattern determining means which determines a bit pattern of coupling bits to be inserted into predetermined positions of main data encoded by a predetermined recording/ encoding format, and ~~is able to~~ determines said bit pattern of said coupling bits based on sub data to be recorded on a recording medium together with said main data;

coupling bits inserting means for inserting said coupling bits of said bit pattern determined by said bit pattern determining means into said predetermined positions of said encoded main data; and

recording means for recording information formed by inserting said coupling bits into said main data, on said recording medium,

wherein the bit pattern of the coupling bits is selected such that a digital sum value converges as near to zero as possible, and

wherein said coupling bits based on sub data are inserted only at positions which allow an optional selection of at least two bit patterns.

2. (Original) The recording apparatus according to claim 1, characterized in that:

said bit pattern determining means is configured to carry out the determination of a bit pattern based on said sub data with regard to coupling bits to be inserted between two signal units both of which have fixed bit patterns and are in a forward and backward relation among signal units forming said main data.

3. (Original) The recording apparatus according to claim 2, characterized in that:

said two signal units are a frame synchronizing signal and a subcode sync.

4. (Currently Amended) A recording method, characterized by executing;

a bit pattern determining sequence which determines a bit pattern of coupling bits to be inserted into predetermined positions of main data encoded by a predetermined recording/encoding

format, and ~~is able to~~ determines said bit pattern of said coupling bits based on sub data to be recorded on a recording medium together with said main data;

a coupling bits inserting sequence for inserting said coupling bits of said bit pattern determined by said bit pattern determining sequence into said predetermined positions of said encoded main data; and

a recording sequence for recording information formed by inserting said coupling bits into said main data, on said recording medium,

wherein the bit pattern of the coupling bits is selected such that a digital sum value converges as near to zero as possible, and

wherein said coupling bits based on sub data are inserted only at positions which allow an optional selection of at least two bit patterns.

5. (Original) The recording method according to claim 4, characterized in that:

said bit pattern determining sequence is configured to carry out the determination of a bit pattern based on said sub data with regard to coupling bits to be inserted between two signal units both of which have fixed bit patterns and are in a forward and backward relation among signal units forming said main data.

6. (Original) The recording method according to claim 5, characterized in that:

said two signal units are a frame synchronizing signal and a subcode sync.

7. (Currently Amended) A reproducing apparatus, characterized by comprising:

reading means for extracting and reading coupling bits from a recording medium recording information constituted by at least main data encoded by a predetermined recording/encoding format and said coupling bits to be inserted only into predetermined positions of said main data which allow an optional selection of at least two bit patterns; and

data value acquiring means for acquiring a data value served as sub data by utilizing a bit pattern of said coupling bits read by said reading means;

wherein the data value acquiring means performs digital sum value control.

8. (Original) The reproducing apparatus according to claim 7, characterized in that:

said reading means extracts coupling bits inserted between two signal units both of which have fixed bit patterns and are in a forward and backward relation among signal units forming said main data; and

said data value acquiring means acquires said value data served as sub data based on the combination of either one of bit patterns held by said two signal units and a bit pattern of said coupling bits.

9. (Original) The reproducing apparatus according to claim 8, characterized in that:

said two signal units are a frame synchronizing signal and a subcode sync.

10. (Currently Amended) A reproducing method, characterized by executing:

a reading sequence for extracting and reading coupling bits from a recording medium recording information constituted by at least main data encoded by a predetermined recording/encoding format and said coupling bits to be inserted only into predetermined positions of said main data which allow an optional selection of at least two bit patterns; and

a data value acquiring sequence for acquiring a data value served as sub data by utilizing a bit pattern of said coupling bits read by said reading sequence;

wherein the data value acquiring means performs digital sum value control.

11. (Original) The reproducing method according to claim 10,

said reading sequence extracts coupling bits inserted between two signal units both of which have fixed bit patterns and are in a forward and backward relation among signal units forming said main data; and

said data value acquiring sequence acquires said data value served as sub data based on the combination of either one of bit patterns held by said two signal units and a bit pattern of said coupling bits.

12. (Currently Amended) The reproducing method according to claim 11, characterized in that said[[:]] two signal units are a frame synchronizing signal and a subcode sync.

13. (Currently Amended) A recording medium, characterized by recording information constituted by main data encoded by a predetermined recording/encoding format and coupling bits to be inserted into predetermined positions of said main data;

wherein said coupling bits are recorded with a bit pattern corresponding to a data value served as sub data;

wherein the digital sum value of the bit pattern of the coupling bits converges as near to zero as possible;

wherein said coupling bits with a bit pattern corresponding to a data value served as sub data are inserted only at positions which allow an optional selectivity of at least two bit patterns.

14. (Original) The recording medium according to claim 13, characterized in that:

said coupling bit having a bit pattern corresponding to said data value served as sub data is inserted between two signal units both of which have fixed bit pattern and are in a forward and backward relation among signal units forming said main data.

15. (Currently Amended) The recording medium according to claim 14, characterized in that said[[:]] two signal units are a frame synchronizing signal and a subcode sync.